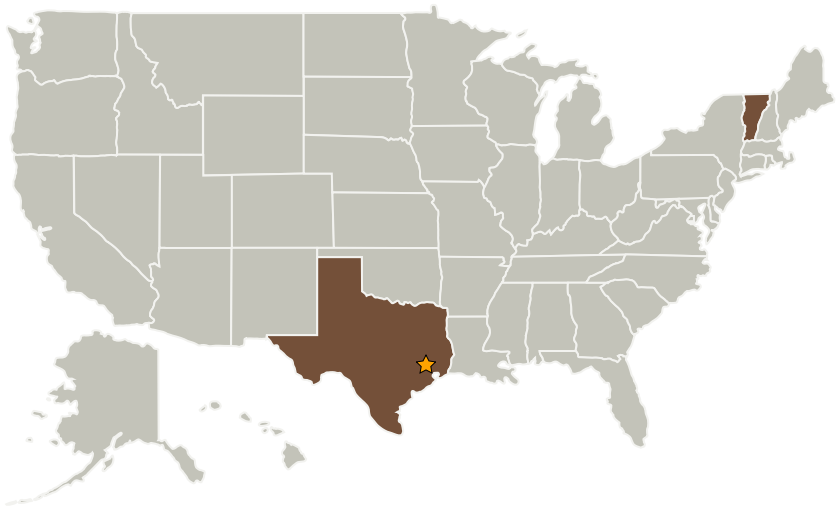
Application of a Fused Carbon Nanomaterial Filter for Lunar Dust Abatement, Phase I

Completed Technology Project (2008 - 2008)

Project Introduction

Seldon Laboratories, LLC, will apply its patented carbon nanotube filtration technology for air and nanoscale particulate engine exhaust filtration to NASA's Lunar Exploration challenges. This project focuses on the problem of efficient removal of nanoscale (10-100nm) and larger lunar dust particulates from air using a nanostructured fiber media containing carbon nanotubes. Lunar dust presents an important challenge to Lunar exploration and habitation, nonetheless it has some unique properties that can be taken advantage of in designing specialized filtration media capable of achieving efficient removal from air. The rough surface shape combined with the electrically and magnetically charged nature of the dust means that rough, electrically activated filtration media will be effective tools for filtration. Seldon's work with its proprietary fused carbon nanotube media offers a unique path to significant new purification applications that meet important needs for NASA's Lunar Exploratory Initiatives. The unique physical properties of the carbon nanotubes will be capitalized upon to create a filtration media with high efficiency and low pressure drop that can be electrically powered to enhance filtration of charged lunar dust particles.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Johnson Space Center (JSC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Johnson Space Center(JSC)	Lead Organization	NASA Center	Houston, Texas
Seldon Technologies, Inc.	Supporting Organization	Industry	Windsor, Vermont

Primary U.S. Work Locations	
Texas	Vermont

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Jeffrey Proehl

Technology Areas

Primary:

- TX07 Exploration Destination Systems
  - TX07.2 Mission Infrastructure, Sustainability, and Supportability
    - TX07.2.5 Particulate Contamination Prevention and Mitigation